

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the Application.

Listing of Claims:

1. (~~Previously Presented~~ Currently Amended) In a data storage environment having a first volume of data denominated as the source being stored on a data storage system, and a second volume of data denominated as the clone, which has data content that is a copy of the data content of the source being stored on the data storage system, a method, operable on a computer system, for protecting the clone's data content during a restoration of the source, the method comprising the steps of:

restoring the source by copying data content from the clone to overwrite the data content of the source[[: and]] while allowing host reads and writes to the Source during the restore restoring step, said copying being determined by a clone delta map used to track extents of the clone that are different between the clone and the source; and

preserving the data content of the clone by not allowing it to be overwritten by host writes during the restoring step[[:.]];

recording data content of the source affected by a host write in a protected restore map used to track extents of the source that are modified during the restoring and preserving steps; and

setting the protected restore map as the delta clone map after the restoring step is completed.

2. (Original) The method of claim 1, wherein the source and the clone are each represented by respective first and second logical units.
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Currently amended) The method of claim [[4]] 1, wherein the clone delta map is used to copy only extents that are different between the clone and the source during the restoring step.
7. (Previously presented) The method of claim 6, wherein the protected restore map is coordinated with the clone delta map for processing of requests to write data to the source.
8. (Currently amended) A system for protecting data content during restoration of data from a second volume of data to a first volume of data, the system comprising:
 - a data storage system having a first volume of data denominated as the source being stored on a data storage system, and a second volume of data denominated as the clone, which has data content that is a copy of the data content of the source being stored on the data storage system;
 - computer-executable program logic, provided from a computer-readable medium, configured for causing the a computer to execute the steps of:
 - restoring the source by copying data content from the clone to overwrite the data content of the source[[: and]] while allowing host reads and writes to the source during the restoring step,

said copying being determined by a clone delta map used to track extents of the clone that are different between the clone and the source restore; and

preserving the data content of the clone by not allowing it to be overwritten by host writes during the restoring step;

recording data content of the source affected by a host write in a protected restore map used to track extents of the source that are modified during the restoring and preserving steps; and

setting the protected restore map as the delta clone map after the restoring step is completed.

9. (Original) The system of claim 8, wherein the source and the clone are each represented by respective first and second logical units.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Currently amended) The system of claim [[11]] 8, wherein the clone delta map is used to copy only extents that are different between the clone and its source during the restoring step.

14. (Previously presented) The system of claim 13, wherein the protected restore map is coordinated with the clone delta map for processing of requests to write data to the source.

15. (Currently amended) A program product for use in a data storage environment and being for protecting data content during restoration of data from a second volume of data to a first volume of data, wherein the data storage environment includes:

a data storage system having a first volume of data denominated as the source being stored on a data storage system, and a second volume of data denominated as the clone, which has data content that is a copy of the data content of the source being stored on the data storage system; and

the program product includes computer-executable logic, provided from a computer-readable medium, and which is configured for causing a computer to execute the steps of:

restoring the source by copying data content from the clone to overwrite the data content of the source[[: and]] while allowing host reads and writes to the Source during the restoring step
restore, said copying being determined by a clone delta map used to track extents of the clone
that are different between the clone and the source; and

preserving the data content of the clone by not allowing it to be overwritten by host writes during the restoring step;

recording data content of the source affected by a host write in a protected restore map
used to track extents of the source that are modified during the restoring and preserving steps;
and

setting the protected restore map as the delta clone map after the restoring step is
completed.

16. (Original) The program product of claim 15, wherein the source and the clone are each represented by respective first and second logical units.

Applicant: David Haase, *et al.*
U.S.S.N.: 10/673,664
Filing Date: September 29, 2003
EMC Docket No.: EMC-03-100

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Currently amended) The program product of claim ~~[[18]]~~ 15, wherein the clone delta map is used to copy only extents that are different between the clone and its source during the restoring step.

21. (Previously presented) The program product of claim 20, wherein the protected restore map is coordinated with the clone delta map for processing of requests to write data to the source.